Hardware User's Manual

Shocker without scrambler

Vogel Test

References:

LE100-25 (76-0334)

Version:

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Panlab | Harvard Apparatus

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1. SYMBOLS TABLE

Recognising the symbols used in the manual will help to understand their meaning:

DESCRIPTION	SYMBOL
Warning about operations that must not be done because they can damage the equipment	
Warning about operations that must be done, otherwise the user can be exposed to a hazard.	
Protection terminal ground connection.	
Warning about a hot surface which temperature may exceed 65ºC	
Warning about a metal surface that can supply electrical shock when it's touched.	
Decontamination of equipments prior to disposal at the end of their operative life	
Waste Electrical and Electronic Equipment Directive (WEEE)	

2. GOOD LABORATORY PRACTICE

Check all units periodically and after periods of storage to ensure they are still fit for purpose. Investigate all failures which may indicate a need for service or repair.

Good laboratory practice recommends that the unit be periodically serviced to ensure the unit is suitable for purpose. You must follow preventive maintenance instructions. In case equipment has to be serviced you can arrange this through your distributor. Prior to Inspection, Servicing, Repair or Return of Laboratory Equipment the unit must be cleaned and decontaminated.

Decontamination prior to equipment disposal

In use this product may have been in contact with bio hazardous materials and might therefore carry infectious material. Before disposal the unit and accessories should all be thoroughly decontaminated according to your local environmental safety laws.

3. UNPACKING AND EQUIPMENT INSTALATION

WARNING: Failure to follow the instructions in this section may cause equipment faults or injury to the user.

A. No special equipment is required for lifting but you should consult your local regulations for safe handling and lifting of the equipment.
B. Inspect the instrument for any signs of damage caused during transit. If any damage is discovered, do not use the instrument and report the problem to your supplier.
C. Ensure all transport locks are removed before use. The original packing has been especially designed to protect the instrument during transportation. It is therefore recommended to keep the original carton with its foam parts and accessories box for re-use in case of future shipments. Warranty claims are void if improper packing results in damage during transport.
D. Place the equipment on a flat surface and leave at least 10 cm of free space between the rear panel of the device and the wall. Never place the equipment in zones with vibration or direct sunlight.
E. Once the equipment is installed in the final place, the main power switch must be easily accessible.
F. Only use power cords that have been supplied with the equipment. In case that you have to replace them, the spare ones must have the same specs that the original ones.
G. Make sure that the AC voltage in the electrical network is the same as the voltage selected in the equipment. **Never connect the equipment to a power outlet with voltage outside these limits.**

WARNING

For electrical safety reasons you only can connect equipment to power outlets provided with earth connections .
This equipment can be used in installations with category II over-voltage according to the General Safety Rules.

The manufacturer accepts no responsibility for improper use of the equipment or the consequences of use other than that for which it has been designed.

PC Control

Some of these instruments are designed to be controlled from a PC. To preserve the integrity of the equipment it is essential that the attached PC itself conforms to basic safety and EMC standards and is set up in accordance with the manufacturers' instructions. If in doubt consult the information that came with your PC. In common with all computer operation the following safety precautions are advised.

WARNING

- To reduce the chance of eye strain, set up the PC display with the correct viewing position, free from glare and with appropriate brightness and contrast settings

- To reduce the chance of physical strain, set up the PC display, keyboard and mouse with correct ergonomic positioning, according to your local safety guidelines.

4. MAINTENANCE

WARNING: Failure to follow the instructions in this section may cause equipment fault.

- PRESS KEYS SOFTLY – Lightly pressing the keys is sufficient to activate them.
- Equipments do not require being disinfected, but cleaned for removing urine, faeces and odour. To do so, we recommend using a wet cloth or paper with soap (which has no strong odour). NEVER USE ABRASIVE PRODUCTS OR DISSOLVENTS.
- NEVER pour water or liquids on the equipment.
- Once you have finished using the equipment turn it off with the main switch. Clean and check the equipment so that it is in optimal condition for its next use.
- The user is only authorised to replace fuses with the specified type when necessary.

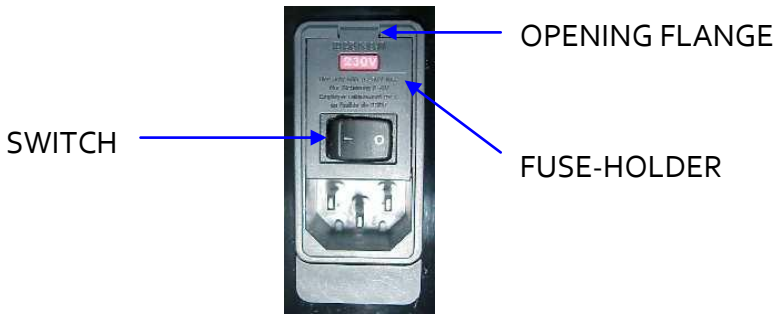

Figure 1. Power inlet, main switch and fuse holder.

FUSE REPLACEMENT OR VOLTAGE SETTING CHANGE

In case of an over-voltage or other incident in the AC net making it impossible to turn on the equipment, or if the equipment voltage setting is incorrect, check fuses according to the following procedure.

1 Remove power cord from the power inlet.

2 Open fuse-holder by pulling the flange with a regular screwdriver.

Figure 2. Open fuse-holder door.

3 Extract fuse holder using the screwdriver.

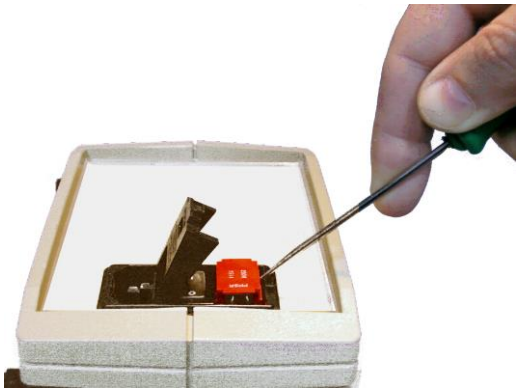

Figure 3. Extract fuse-holder.

4 Replace fuses if necessary. Insert fuses in the fuse-holder in the correct position.

CORRECT INCORRECT

Figure 4. Fuses position.

5 Insert the fuse-holder again, positioning it according to the voltage in the AC net.

115V POSITON 230V POSITION

Figure 5 Fuse holder position.

6 If the fuses blow again, unplug the equipment and contact technical service.

WARNING **For electrical safety reasons, never open the equipment. The power supply has dangerous voltage levels.**

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6. INTRODUCTION

The Vogel test is a conflict test that has become a standard for fast screening of the potential anxiolytic properties of drugs. In this procedure, drinking behaviour is punished by mild electrical shocks leading to a significant reduction of water consumption in depressed animals. Drinking responses are then re-established by drugs with anxiolytic properties.

Figure 6. LE100-25 Vogel Shocker Control Unit.

The Panlab Vogel test consists of a standard home cage associated with a grid floor. An electronic unit associated with a special nipple ensures the detection and counting of the licks, reflecting the animal's drinking behaviour.

An exclusive nipple design ensures that any casual or non-specific contacts of the animal with the nipple will not be considered as a drinking response.

The multi-cage configuration of the Vogel test, associated with the **Packwin** software, allows performance of the Vogel test for up to 32 cages. The cages are associated with a link box (1 for every 8 cages) ensuring the functional interaction between the lick sensor system, the shock generator (1 per cage) and the **PackWin** software for advanced protocol configuration and data acquisition.

The interconnection between the cages and the computer is carried out through an RS 232 serial communication. Such a configuration allows the test to be performed on a desktop.

Output is optically isolated from ground.

WARNING: If you touch at the same time the bottle tetine and the grid while an experiment is being conducted you may receive electrical shock.

7. EQUIPMENT DESCRIPTION

7.1. LE100-25 FRONT PANEL

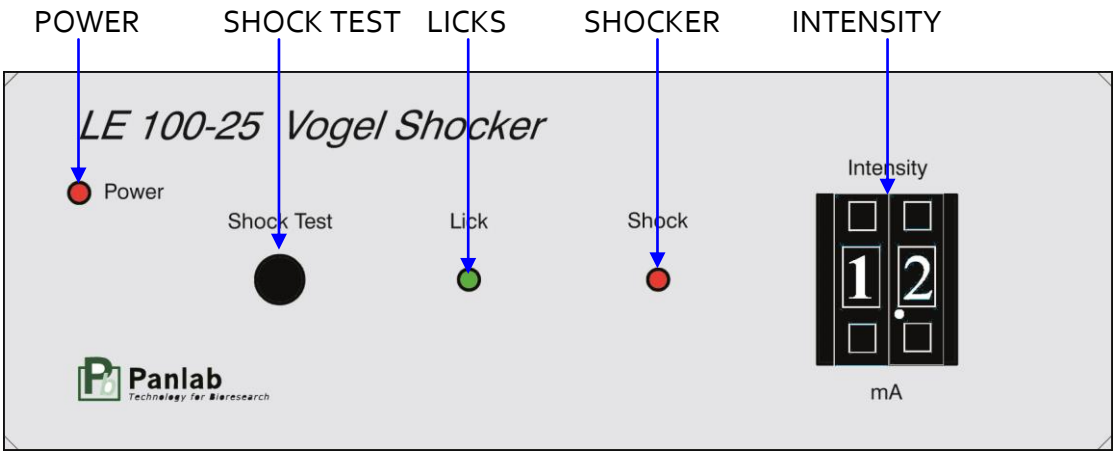

Figure 7. LE100-25 Front Panel.

- **POWER:** 3mm red led that remains ON while control unit is on.
- **SHOCK TEST:** Shock can be tested by pressing this button. In this case shock will be activated while the button is pressed.
- **LICKS:** 3mm green led that comes on each time a lick is detected.
- **SHOCK:** 3mm red led that comes on whenever the shocker is active (manually by pressing the SHOCK TEST button or remotely activated through the software).
- **INTENSITY:** Decimal selector used to select shock intensity from 0.1mA DC to 1.9mA DC, in steps of 0.1mA DC.

7.2. LE100-25 REAR PANEL

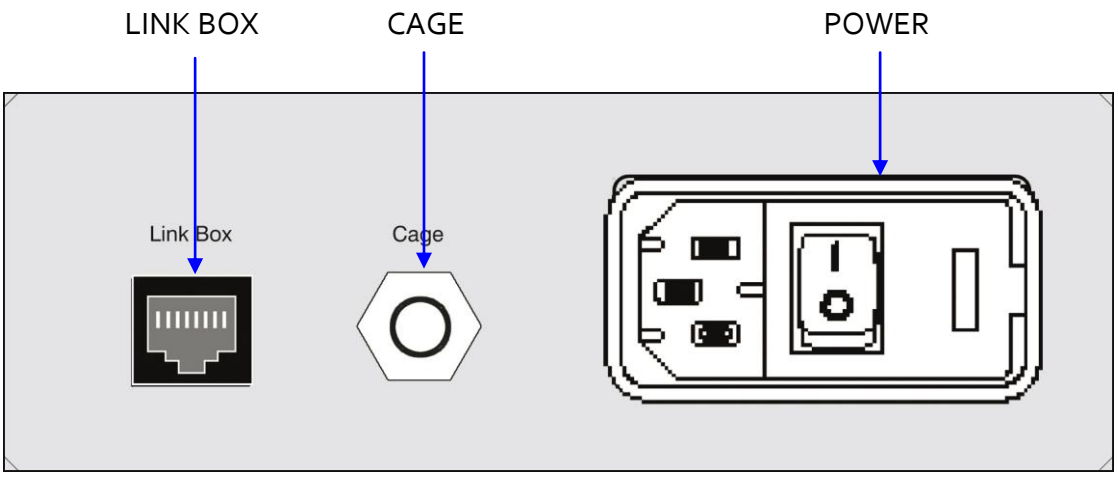

Figure 8. LE100-25 Rear Panel.

- **LINK BOX:** RJ11 telephonic female connector used to connect the LE100-25 with the Link Box 01. Each Link Box 01 is able to control up to 8 LE100-25's. The maximum number of cages to be connected to one computer is 32. This is done by using 4 Link Box 01's connected in series.

- **CAGE:** A stereo jack is used to connect the LE100-25 with the grid and the nipple. It supplies the shock to the animal whenever it drinks.

- **POWER:** Power inlet, main switch and fuse-holder.

8. EQUIPMENT CONNECTION

The following illustration features an example of the connection of 2 Vogel Test Cages with one Link Box 01 and one computer.

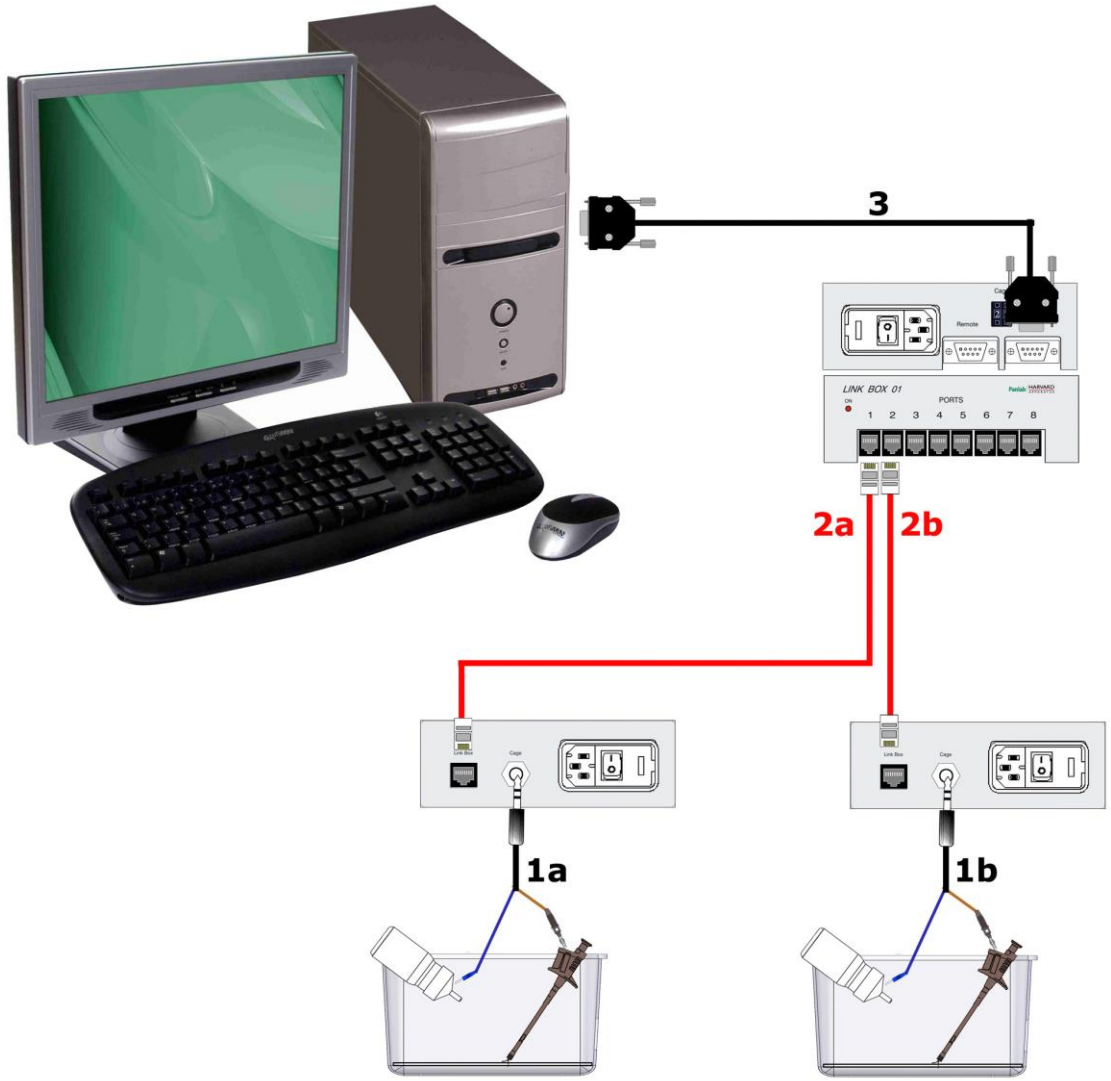

Figure 9. Example of connection of 2 cages.

The necessary cables and connections are listed in the following table

	FROM	TO	CABLE
1	LE100-25 Cage[1]	Nipple and Grid	Stereo jack to 2 bananas
2	LE100-25 Link Box[2]	Link Box Port n[3]	RJ11 telephonic cable
3	Link Box 01 Main	Computer Com Port	RS-232 cable

[1] This connection is repeated for each LE100-25
[2] This connection is repeated for each LE100-25
[3] N is the number of port among 1 and 8

One computer is able to control up to 32 LE100-25's. In this case it will be necessary to connect 4 Link Box 01's to the computer in series (8 LE100-25's will be connected to each Link Box 01).

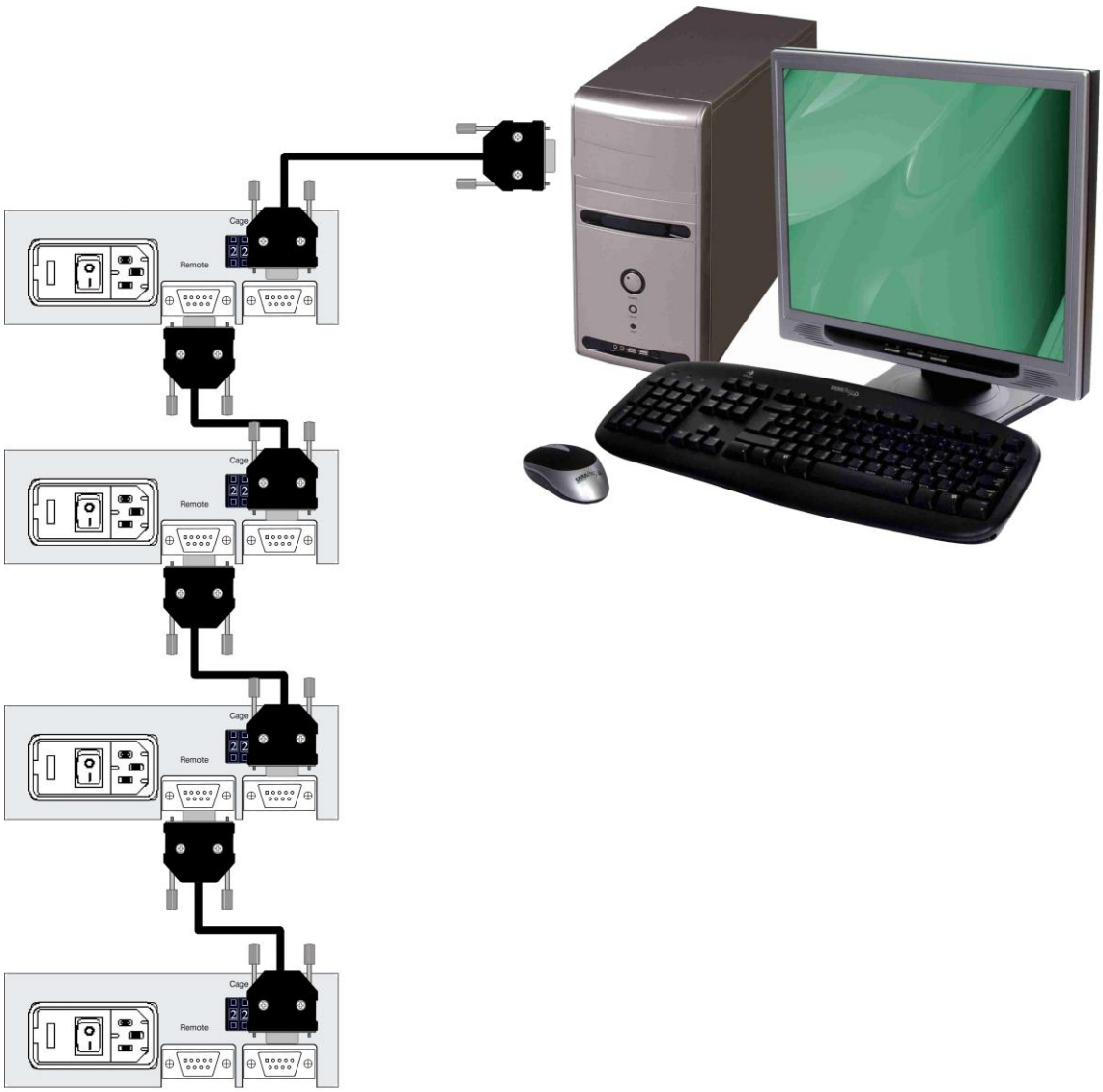

Figure 10. Series connection of the Link Boxes.

The following rules must be met:

- **Main** port of the first **Link Box** is connected to the Computer Com Port.
- **Remote** Port of each **Link Box** is connected to the **Main** Port of the next **Link Box**.
- **Remote** Port of the last **Link Box** is left free.
- All the **ID** numbers must be different.

9. WORKING WITH THE UNIT

9.1. CONDUCTING AN EXPERIMENT

To conduct an experiment with the unit, proceed as follows:

1. Connect all the cables as explained in Chapter 8 of this manual.
2. Place the animals in the experimentation cages.
3. Turn on all the units.
4. Within the **PackWin** software, load an existing Protocol or edit a new one (See Vogel Test working procedure for further information).
5. Run the protocol to proceed with the experiment.
6. Once the experiment has ended, remove the animals from the experimentation cages.
7. Clean the experimentation cages to prepare for a new experiment.
8. Turn off all control units.

9.2. CLEANING THE CAGE

To clean the cage you can use a slightly wet cloth and then dry them with a dry cloth. If it is too dirty you can wet the cloth with a soapy solution to clean them, then remove foam with a wet cloth and finally dry them with a dry cloth.

9.3. CLEANING THE GRID

To clean the grid you can use a slightly wet cloth and then dry them with a dry cloth. If it is too dirty you can wet the cloth with a soapy solution to clean them, then remove foam with a wet cloth and finally dry them with a dry cloth.

9.4. CLEANING THE BOTTLE

To clean the bottle you can use a slightly wet cloth and then dry them with a dry cloth. If it is too dirty you can wet the cloth with a soapy solution to clean them, then remove foam with a wet cloth and finally dry them with a dry cloth.

9.5. STERILIZE THE CAGE, THE FRID AND THE BOTTLE

Either cage or grid are autoclavable. Before sterilizing them you should disconnect the tweezers that are not ready to resist the heat.

WARNING: Only the body of bottle and metal parts of the tetine are autoclavable. Plastic parts of the tetine must not be autoclavable, otherwise they will be damaged.

10. TROUBLESHOOTING

This table features instructions to solve the most frequent problems.

PROBLEM	SOLUTION
The equipment does not start up.	• Ensure that the voltage of mains is the same as that selected in the fuse holder. • Check the condition of the fuses.
The animal does not receive shock.	• Verify that all cables are connected (see Chapter 8) • Check that both control units LE100-25 Vogel Shocker and Link Box 01 are powered. • Verify that the current decimal selector is not set to 0.0mA. • Check the protocol you are using in **Packwin**. • Verify that the selected serial port in **Packwin** match the computer serial port.

11. PREVENTIVE MAINTENANCE

	EXPERIMENT	MONTHLY
GRID CLEANING	☑	
CAGE CLEANING	☑	
BOTTLE CLEANING	☑	
GRID STERLIZING		☑
CAGE STERILIZING		☑
BOTTLE STERILIZING[4]		☑

[4] See chapter 9.5 warning.

12. TECHNICAL SPECIFICATIONS

POWER SUPPLY	
Input voltage:	115/230 VAC
Frequency:	50/60 Hz
Fuse:	2 fuses 5mm*20mm 100mA fast
Maximum Power:	20W
Conducted Noise:	EN55022 /CISPR22/CISPR16 class B
ENVIRONMENTAL CONDITIONS	
Operating temperature:	10°C to +40°C
Operating relative humidity:	0% to 85% RH, non-condensing
Storage temperature:	0°C to +50°C, non-condensing
SHOCKER	
Range:	0mA to 1.9mA DC
Selector:	Steps of 0.1mA DC
LICK DETECTION	
Maximum impedance detection:	5MΩ
Lick detection current:	<0,55µA
DIMENTIONS (control unit)	
Width x Height x Depth:	161mm x 67 mm x 188 mm
Weight:	850g

DECLARACIÓN DE CONFORMIDAD
DECLARATION OF CONFORMITY
DECLARATION DE CONFORMITÉ

Nombre del fabricante: Manufacturer's name: Nom du fabricant:	**Panlab s.l.u.** www.panlab.com info@panlab.com
Dirección del fabricante: Manufacturer's address: Adresse du fabricant:	Energía, 112 08940 Cornellà de Llobregat Barcelona SPAIN
Declara bajo su responsabilidad que el producto: Declares under his responsibility that the product: Déclare sous sa responsabilité que le produit:	**VOGEL SHOCKER**
Marca / Brand / Marque:	**PANLAB**
Modelo / Model / Modèle:	**LE 100-25**

Cumple los requisitos esenciales establecidos por la Unión Europea en las directivas siguientes:
Fulfils the essential requirements established by The European Union in the following directives:
Remplit les exigences essentielles établies pour l'Union Européenne selon les directives suivantes:

2006/95/EC	Directiva de baja tensión / Low Voltage / Basse tensión
2004/108/EC	Directiva EMC / EMC Directive / Directive CEM
2012/19/EU	La Directiva de Residuos de Aparatos Eléctricos y Electrónicos (WEEE) / The Waste Electrical and Electronic Equipment Directive (WEEE) / Les déchets d'équipements électriques et électroniques (WEEE)
2011/65/EU	Restricción de ciertas Sustancias Peligrosas en aparatos eléctricos y electrónicos (ROHS) / Restriction of the use of certain Hazardous Substances in electrical and electronic equipment (ROHS) / Restriction de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques (ROHS)
2006/42/EC	Directiva mecánica / Machinery directive / Directive mécanique

Para su evaluación se han aplicado las normas armonizadas siguientes:
For its evaluation, the following harmonized standards were applied:
Pour son évaluation, nous avons appliqué les normes harmonisées suivantes:

Seguridad / Safety / Sécurité:	**EN61010-1:2011**
EMC:	**EN61326-1:2012 Class B**
FCC:	**FCC47CFR 15B Class B**
Safety of machinery:	**EN ISO 12100:2010**

En consecuencia, este producto puede incorporar el marcado CE y FCC:
Consequently, this product can incorporate the CE marking and FCC:
En conséquence, ce produit peut incorporer le marquage CE et FCC:

En representación del fabricante:
Manufacturer's representative:
En représentation du fabricant:

Carme Canalís
General Manager
Panlab s.l.u., a division of Harvard BioScience

Cornellà de Llobregat, Spain
25/06/2014

Shocker without scrambler

(GB) *Note on environmental protection:*

After the implementation of the European Directive 2002/96/EU in the national legal system, the following applies:
Electrical and electronic devices may not be disposed of with domestic waste.Consumers are obliged by law to return electrical and electronic devices at the end of their service lives to the public collecting points set up for this purpose or point of sale. Details to this are defined by the national law of the respective country. This symbol on the product, the instruction manual or the package indicates that a product is subject to these regulations. By recycling, reusing the materials or other forms of utilising old devices, you are making an important contribution to protecting our environment.

(E) *Nota sobre la protección medioambiental:*

Después de la puesta en marcha de la directiva Europea 2002/96/EU en el sistema legislativo nacional, Se aplicara lo siguiente:
Los aparatos eléctricos y electrónicos, así como pilas y baterías, no se deben tirar a la basura doméstica. El usuario está legalmente obligado a llevar los aparatos eléctricos y electrónicos, así como pilas y baterías, al final de su vida útil a los puntos de recogida municipales o devolverlos al lugar donde los adquirió. Los detalles quedaran definidos por la ley de cada país. El símbolo en el producto, en las instrucciones de uso o en el embalaje hace referencia a ello. Gracias al reciclaje, a la reutilización de materiales i a otras formas de reciclaje de aparatos usados, usted contribuirá de forma importante a la protección de nuestro medio ambiente.

(F) *Remarques concernant la protection de l'environnement :*

Conformément à la directive européenne 2002/96/CE, et afin d'atteindre un certain nombre d'objectifs en matière de protection de l'environnement, les règles suivantes doivent être appliquées.
Elles concernent les déchets d'équipement électriques et électroniques. Le pictogramme "picto" présent sur le produit, son manuel d'utilisation ou son emballage indique que le produit est soumis à cette réglementation. Le consommateur doit retourner le produit usager aux points de collecte prévus à cet effet. Il peut aussi le remettre à un revendeur.En permettant enfin le recyclage des produits, le consommateur contribuera à la protection de notre environnement. C'est un acte écologique.

(D) *Hinweis zum Umweltschutz:*

Ab dem Zeitpunkt der Umsetzung der europäischen Richtlinie 2002/96/EU in nationales Recht gilt folgendes:
Elektrische und elektronische Geräte dürfen nicht mit dem Hausmüll entsorgt werden. Der Verbraucher ist gesetzlich verpflichtet, elektrische und elektronische Geräte am Ende ihrer Lebensdauer an den dafür eingerichteten, öffentlichen Sammelstellen oder an die Verkaufstelle zurückzugeben. Einzelheiten dazu regelt das jeweilige Landesrecht. Das Symbol auf dem Produkt, der Gebrauchsanleitung oder der Verpackung weist auf diese Bestimmungen hin. Mit der Wiederverwertung, der stofflichen Verwertung oder anderer Formen der Verwertung von Altgeräten leisten Sie einen wichtigen Beitrag zum Schutz unserer Umwelt.

(I) *Informazioni per protezione ambientale:*

Dopo l'implementazione della Direttiva Europea 2002/96/EU nel sistema legale nazionale, ci sono le seguenti applicazioni:
I dispositivi elettrici ed elettronici non devono essere considerati rifiuti domestici. I consumatori sono obbligati dalla legge a restituire I dispositivi elettrici ed elettronici alla fine della loro vita utile ai punti di raccolta collerici preposti per questo scopo o nei punti vendita. Dettagli di quanto riportato sono definiti dalle leggi nazionali di ogni stato. Questo simbolo sul prodotto, sul manuale d'istruzioni o sull'imballo indicano che questo prodotto è soggetto a queste regole. Dal riciclo, e re-utilizzo del material o altre forme di utilizzo di dispositivi obsoleti, voi renderete un importante contributo alla protezione dell'ambiente.

(P) *Nota em Protecção Ambiental:*

Após a implementação da directiva comunitária 2002/96/EU no sistema legal nacional, o seguinte aplica-se:
Todos os aparelhos eléctricos e electrónicos não podem ser despejados juntamente com o lixo doméstico Consumidores estão obrigados por lei a colocar os aparelhos eléctricos e electrónicos sem uso em locais públicos especficos para este efeito ou no ponto de venda. Os detalhes para este processo são definidos por lei pelos respectivos países. Este símbolo no produto, o manual de instruções ou a embalagem indicam que o produto está sujeito a estes regulamentos. Reciclando, reutilizando os materiais dos seus velhos aparelhos, esta a fazer uma enorme contribuição para a protecção do ambiente.